Isotope Explorer Versions 2.2 and 3.0

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Isotope Explorer is a Windows C++ application for searching and displaying the Evaluated Nuclear Structure Data File (ENSDF) and the Nuclear Science Reference file (NSR). Isotope Explorer was first released in 1994 (formerly VuENSDF), and Version 2.2 is available on the WWW at http://ie.lbl.gov/isoexpl/isoexpl.htm, and on the *Table of Isotopes* CD-ROM. This version of Isotope Explorer must be downloaded and installed before it can run on a PC. Version 3.0 of Isotope Explorer has been written in HTML and Java. It can display tabular data with most web browsers, and level-scheme drawings with the most recent version of Netscape or Microsoft browsers. Isotope Explorer 3.0 is available at http://ie.lbl.gov/ensdf, and does not need to be installed on a local computer as it is machine independent.

Isotope Explorer has three operating modes, NUCLEUS, CHART (2.2), and REFERENCE. In NUCLEUS mode, the program can display ENSDF data that is downloaded directly from the Isotopes Project WWW server or from a local database, such as the *Table of Isotopes* CD-ROM, with version 2.2. Version 3.0 allows the user to select individual datasets from various ENSDF format databases, and version 2.2 provides all datasets for an isotope at one time. Data can be displayed as level-scheme drawings, Nuclear Data Sheets style tables complete with comments, graphically (2.2), or as text files. Information can be filtered by level or gamma (3.0) property, and nuclear band configuration. Special features include γ-ray coincidence selection, table column sorting (2.2), and hypertext links between tables, comments, and references (3.0).

In CHART mode (2.2) Isotope Explorer can display data from experimental (ENSDF) or theoretical (Møller[3]) isotope/isomer databases. Users can also readily design their own databases. Charts can be colored by data values either automatically or under full user control. A script language is available to define functional relationships between data and for searching the ENSDF database. The results of calculations and ENSDF searches can be displayed on the chart. Clicking on an isotope box can display either the properties associated with that nuclide or show its decay to stability. Sample charts colored by half-life, spin/parity, comparison of liquid drop model calculation to experiment, search for γ-rays of a specific energy, and other topics are provided. Charts can be modified by the user, saved to a disk, and printed.

In REFERENCE mode the Isotope Explorer can display keyword abstracts from the NSR file for references in ENSDF datasets or specific NSR key numbers. Reference searches can also be made by author name.

Footnotes and References

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